

IN THE CLAIMS

Amend the claims as follows:

1. (Original) A panel structure comprising two sheets which are spaced apart to provide a void between, and are tied together by a plurality of tie means extending from one of the sheets to the other, the tie means being formed of substantially the same material as the sheets, and the sheets and the tie means forming an uninterrupted body of the material, the ties being arranged to leave unobstructed voids within the plane of the panel, and there being an elongate reinforcing member located within at least one of the voids.

2. (Original) A panel structure according to claim 1, wherein the ties are arranged across the sheets in a geometric lattice.

3. (Previously Presented) A panel structure according to claim 1, wherein the void between the sheets contains a material different to the sheets.

4. (Original) A panel structure according to claim 3, wherein the different material is an expanded material.

5. (Previously Presented) A panel structure according to claim 1, wherein the material of the sheets and tie means is a thermosetting or thermoplastic plastics material, polymer material, metal or board material.

6. (Previously Presented) A panel structure according to claim 1, wherein the material of the sheets incorporates reinforcing fibers .

7. (Previously Presented) A panel structure according to claim 1, wherein the sheets are generally planar.

8. (Original) A panel structure according to claim 7, wherein the sheets are generally parallel.

9. (Previously Presented) A panel structure according to claim 1, wherein the tie means each consist of material of one or more sheets, deformed out of the plane of the corresponding sheet and fused to material of the other sheet.

10. (Original) A panel structure according to claim 9, wherein material of both sheets is deformed from the respective plane to be fused with material of the other sheet at a position between the sheets.

11. (Original) A panel structure according to claim 10, wherein the material of the sheets is fused midway between the sheets.

12. (Previously Presented) A panel structure according to claim 9, wherein the material is deformed by a process which includes the application of heat.

13. (Previously Presented) A panel structure according to claim 9, wherein the material is deformed by a process which includes the application of pressure.

14. (Previously Presented) A panel structure according to claim 9, wherein the material is deformed to form hollow projections toward the other sheet.

15. (Previously Presented) A panel structure according to claim 9, wherein the material is deformed to form solid projections toward the other sheet.

16. (Previously Presented) A panel structure according to claim 9, wherein the projections are formed with pointed, rounded or flat peaks for fusion with corresponding peaks formed from the other sheet.

17. (Previously Presented) A panel structure according to claim 9, wherein no more than one half of the area of the sheets is deformed to form tie means.

18. (Original) A panel structure according to claim 17, wherein the sheets are substantially planar between areas of deformation.

19. (Previously Presented) A panel structure according to claim 17, wherein the sheets are deformed only at points, being substantially undeformed therebetween.

20. (Canceled).

21. (Canceled).

22. (New) A panel, comprising:

first and second generally planar sheets spaced apart from one another;

the first sheet having a plurality of projections extending toward the second sheet, the projections of the first sheet and the first sheet being formed of substantially the same material;

the second sheet having a plurality of projections extending toward the first sheet, the projections of the second sheet and the second sheet being formed of substantially the same material;

each of the projections of the first sheet coupled to a corresponding one of the projections of the second sheet in a manner that forms an uninterrupted body between corresponding pairs of projections of the first and second sheets;

the projections of the first and second sheets being arranged to provide a plurality of voids between the first and second sheets at positions at which there are no projections; and

an elongate reinforcing member disposed within at least one of the voids.

23. (New) The panel of claim 22, wherein each of the projections of the first sheet meets the corresponding one of the projections of the second sheet along the same plane.

24. (New) The panel of claim 22, wherein each of the first and second sheets is formed of one of thermoset plastic material, thermoplastic material, polymer material, metal alloy and paper board.

25. (New) The panel of claim 22, wherein each of the first and second sheets includes reinforcing fibers.

26. (New) The panel of claim 22, wherein each of the projections of the first and second sheets includes a flat peak so that each of the projections of the first sheet meets the corresponding one of the projections of the second sheet along the entire flat peaks of the projections.

27. (New) The panel of claim 22, comprising foam material disposed within a plurality of the voids between the first and second sheets.

28. (New) The panel of claim 27, wherein the foam material disposed within the plurality of the voids is adapted to provide at least one of thermal and sound insulation.

29. (New) The panel of claim 22, wherein the elongate reinforcing member is substantially rigid.

30. (New) The panel of claim 29, wherein the elongate reinforcing member is of sufficient size to bear against both the first and second sheets at positions of the first and second sheets at which there is no projection.

31. (New) The panel of claim 30, wherein the elongate reinforcing member is disposed

within one of the voids having a hexagonal shape, the elongate reinforcing member bearing against opposite sides of the hexagonal shape representing positions of the first and second sheets at which there is no projection.

32. (New) The panel of claim 22, wherein the elongate reinforcing member is hollow and adapted to be used as a service duct.

33. (New) The panel of claim 22, wherein the elongate reinforcing member is straight and extends along an entire length of the first and second sheets.

34. (New) The panel of claim 22, comprising a plurality of elongate reinforcing members disposed within the voids; a first of the elongate reinforcing members being coupled to a second of the elongate reinforcing members to form a joint.

35. (New) The panel of claim 34, wherein the first and second elongate reinforcing members extend perpendicular to one another.

36. (New) The panel of claim 22, wherein the elongate reinforcing member is bent.

37. (New) The panel of claim 22, wherein each of the projections of the first and second sheets is conical in shape and includes a pointed peak so that each of the projections of the first sheet meets the corresponding one of the projections of the second sheet at the pointed peaks of the projections.

38. (New) The panel of claim 37, wherein the elongate reinforcing member is substantially rigid and of sufficient size to bear against both the first and second sheets at positions of the first and second sheets at which there is no projection.

39. (New) The panel of claim 22, wherein each of the projections of the first and second

sheets is solid.

40. (New) The panel of claim 39, wherein a surface of the first sheet not facing the second sheet reveals no depressions towards the second sheet, and a surface of the second sheet not facing the first sheet reveals no depressions towards the first sheet.

41. (New) The panel of claim 22, wherein each of the projections of the first and second sheets is hollow.

42. (New) The panel of claim 41, wherein a surface of the first sheet not facing the second sheet reveals visible concavities at positions at which there exist projections, and a surface of the second sheet not facing the first sheet reveals visible concavities towards the first sheet at which there exist projections.

43. (New) The panel of claim 42, wherein each of the projections of the first and second sheets is arranged at an interstice of a square lattice, and a size of the square lattice is sufficiently wide to provide unobstructed straight voids in which to receive elongate reinforcing members.

44. (New) The panel of claim 42, wherein an area of each of the first and second sheets disposed between the visible concavities is substantially greater than one half a total area of the respective one of the first and second sheets.

45. (New) The panel of claim 22, wherein each of the corresponding pairs of projections of the first and second sheets forms a column extending between the first and second sheets.

46. (New) The panel of claim 45, wherein each of the projections of the first and second sheets is substantially solid.

47. (New) A method of forming a panel, comprising the steps of:

providing a first generally planar sheet having a pre-formed plurality of projections;
providing a second generally planar sheet having a pre-formed plurality of projections;
bringing peaks of the plurality of projections of the first sheet together with peaks of the plurality of projections of the second sheet;

applying heat to the peaks of the projections to soften material in a region of each of the peaks; and

fusing the peaks of the projections of the first and second sheets in contact with one another to provide a fused, solid material at positions of contact of the peaks of the projections of the first and second sheets.

48. (New) The method of claim 47, wherein the step of bringing the peaks of the projections of the first and second sheets together is carried out by bringing the peaks together around an elongate reinforcing member, the elongate reinforcing member being disposed within a void between the first and second sheets.

49. (New) The method of claim 47, comprising the step of introducing an elongate reinforcing member axially into a void between the first and second sheets after peaks of the projections of the first and second sheets are brought together.

50. (New) The method of claim 47, comprising continuously feeding the first and second sheets toward first and second rollers each having a plurality of heating elements; wherein the step of applying heat is carried out by the heating elements of the first and second rollers.

51. (New) A method of forming a panel, comprising the steps of:

providing a first generally planar sheet;

providing a second generally planar sheet;
bringing the first and second sheets together in contact with one another;
applying localized heat to each of the locations on the first and second sheets at which a projection is to be provided to fuse together corresponding heated locations on the first and second sheets;

moving, after fusion has begun but before the first and second sheets have fully cooled, the first and second sheets apart from one another to form projections between the sheets at fused locations of the first and second sheets; and

maintaining the first and second sheets in a position apart from one another until the first and second sheets have cooled.

52. (New) The method of claim 51, comprising introducing an elongate reinforcing member within a void formed between the first and second sheets.

53. (New) The method of claim 51, wherein the step of moving the first and second sheets apart from one another is carried out by employing suction from outside the panel.

54. (New) The method of claim 51, wherein the step of moving the first and second sheets apart from one another is carried out by blowing a substance between the first and second sheets to force the first and second sheets apart.

55. (New) The method of claim 51, comprising applying a secondary region of heat around said each of the locations on the first and second sheets at which a projection is to be provided.

56. (New) The method of claim 55, wherein the step of applying a secondary region of

heat is carried out in a manner that does not fuse the first and second sheets of material at positions at which the secondary region of heat is applied.

57. (New) The method of claim 56, wherein positions of the first and second sheets of material at which the secondary region of heat is applied form side walls of the projections when the first and second sheets are moved apart from one another.

58. (New) The method of claim 55, wherein the step of applying a secondary region of heat is carried out at a lower temperature than a temperature at which the localized heat is applied.

59. (New) The method of claim 55, wherein the step of applying a secondary region of heat is carried out for a shorter period of time than a period of time for which the localized heat is applied.

60. (New) The method of claim 51, comprising continuously feeding the first and second sheets toward first and second rollers each having a plurality of heating elements and a plurality of suction elements; wherein the step of applying localized heat is carried out by the heating elements of the first and second rollers, and the step of moving the first and second sheets apart is carried out by the suction elements of the first and second rollers.

61. (New) The method of claim 60, comprising feeding an elongate reinforcing member within a void formed between the first and second sheets while the first and second sheets are continuously fed toward the first and second rollers.